

REMARKS

Claims 1 – 11 and 13 are pending in this application with claim 12 being cancelled by this response and claim 13 being added by this response. New claim 13 is directed to a computer readable medium for storing data transformed in accordance with the method of claim 1. Support for new claim 13 can be found throughout the specification and the original claims, and more specifically on page 5, lines 8-16 and page 11, line 29 through page 12, line 2. In view of the support for new claim 13, Applicants respectfully submit that no new matter has been added by the amended claims.

Objection to the Drawings

The drawings are objected to under 37 CFR 1.83(a) as not showing every feature of the invention specified in the claims. Please add these attached Drawing sheets to the subject application. The attached Drawing sheets have been added in response to the comments in the Office Action to show every feature of the invention. Support for the added Drawings can be found throughout the specification and original claims, and particularly on pages 7 and 8 of the original specification and in original claims 1 and 4. The specification has been amended to identify the new Drawings in the Brief Description of the Drawings. The specification has been further amended to insert the language of original claims 1 and 4 into the body of the specification, and to add specific references therein to the corresponding reference numbers in the Drawings. Because the original claims constitute part of the original specification, it is respectfully submitted that no new matter has been added by the amendment to the specification and addition of the new Drawing Figures. In view of the attached Drawings, it is respectfully submitted that this objection is satisfied and should be withdrawn.

Rejection of Claims 1-12 under 35 U.S.C. § 101

Claims 1 – 6 are rejected under 35 U.S.C. 101, as not falling within one of the four statutory categories of invention citing recent Federal Circuit decisions as indicating that a

statutory process must be tied to another statutory category, such as an apparatus, or must transform underlying subject matter to a different state or thing.

Claim 1 provides a method for run-length encoding of a data stream comprising bitmap formatted subtitle or menu data for video presentation on a display, wherein the subtitle or menu data include graphics or text or both. A preferred color is defined, and a range of run-lengths is defined. Pixels of the preferred color are encoded to first code words with two or three bytes, wherein the first code words comprise a run-length value, and wherein the run-length value comprised in first code words having three bytes exceeds the defined range and may exceed the width of the display. Pixels of another than the preferred color are encoded to second code words with one, three or four bytes, wherein the second code words comprise a color value, and wherein second code words having three or four bytes comprise a run-length value, and wherein the run-length value comprised in second code words having four bytes exceeds the defined range and may exceed the width of the display.

Using the present claimed arrangement advantageously enables the storage of a minimum amount of data to represent, without loss, text or graphic data, which can later be decoded according to a corresponding method to present the text or graphic data on a display that comprises a video image.

Applicants respectfully submit that the claimed method is patentable subject matter, because, as set forth in *In re Bilski*, the claimed method transforms underlying subject matter to a different state or thing (*In re Bilski*, 545 F.3d 943, 954 (Fed. Cir. 2008) (en banc)). According to the court in *Bilski*, patentable method claims require that, for a patentability claim based on transformation of a particular article, the article transformed must itself be patentable subject matter, and the transformation of the article must be central to the purpose of the claimed method.

The data being transformed by the present claimed method constitutes an article whose transformation is patent-eligible under 35 U.S.C. 101 because the data “represents a physical object or substance” (*Bilski*, 960–61). The underlying subject matter of the

claimed method is data “comprising bitmap formatted subtitle or menu data for video presentation on a display” as recited in claim 1. The data represents physical quantities, the color values of individual pixels on a video display. As discussed above, encoding according to the claimed method transforms the data stream to a smaller amount of data, a different physical representation, without loss of any of the information therein. Such an encoding of the specified data is not a mathematical definition of a law of nature, but a practical application of a concept of coding based on code words of differing lengths. In the present claimed method, the data represents “bitmap formatted subtitle or menu data for video presentation on a display . . . [including] graphics or text or both” as recited in claim 1.

Transformation of the data is the central purpose of the present claimed method, since claim 1 recites “a method for run-length encoding of a data stream.” Additionally, the characterization of the data as “bitmap formatted subtitle or menu data for video presentation on a display” imposes meaningful limits on the scope of the claim. The claimed encoding method is based on physical characteristics of bitmap formatted text or graphics files comprising subtitle or menu data, such as the existence of a pervasive background color (usually transparent), and the common occurrence of sequences of pixels of a single color (as part of a letter or graphic image). As the specification states, “[the encoding method] allows for the most compact encoding of typical subtitle streams, including transparent areas, small graphical objects and normal subtitle text” (Specification page 9, lines 20 – 23). The steps of the claimed method physically transform the data representing the pixel colors of graphics or text into a compressed encoded format without loss of information, “encoding pixels of the preferred color to first code words . . . [and] encoding pixels of another than the preferred color to second code words” as recited in claim 1. By reducing the size of the data representing the text or graphics, the method facilitates the storage or transmission of the data for later decoding and video presentation on a display. Thus, the present claimed arrangement transforms an article to a different state, and the underlying subject matter transformed in the claimed arrangement is

patentable subject matter, because it represents "bitmap formatted subtitle or graphic data for video presentation on a display" as recited in claim 1.

The transformation accomplished is more than mere insignificant post-solution activity. Transforming the data to the encoded representation claimed facilitates the use of the data in broadcast systems as well as its storage in physical media. It is the central feature of the claim. In view of the above remarks, Applicants respectfully submit that the rejection of claim 1 is satisfied and should be withdrawn.

Claims 2 and 3 are dependent on claim 1 and are considered patentable for the reasons presented earlier with regard to claim 1. Thus, Applicants respectfully submit that the rejection of claims 2 and 3 are satisfied and should be withdrawn.

Claim 4 provides a method for run-length decoding of an encoded data stream for a video presentation on a display. The first byte of a code word is determined. If the first byte of the code word does not have a defined first value, the first byte is decoded to a single pixel having individual color defined by the value of the first byte, the color being other than a defined first color. If the first byte does have the defined first value, the first and second bits of the following byte are determined. If the first and second bits of the second byte have a first value, the remaining bits of the second byte are decoded to a sequence of pixels of the defined first color, wherein the remaining bits of the second byte define the sequence length. If the first and second bits of the second byte have a second value, the remaining bits of the second byte together with the third byte are decoded to a sequence of pixels of the defined first color, wherein the remaining bits of the second byte and the third byte define the sequence length, and the sequence length may exceed the display width. If the first and second bits of the second byte have a third value, the remaining bits of the second byte together with the third byte are decoded to a sequence of pixels, wherein the remaining bits of the second byte define the sequence length, and the third byte defines the pixels color. If the first and second bits of the second byte have a fourth value, the remaining bits of the second byte together with the third byte and a following fourth byte are decoded to a sequence of pixels, wherein the remaining bits of

the second byte and the third byte define the sequence length, and the fourth byte defines the pixels color, and the sequence length may exceed the display width.

Claim 4 has features similar to claim 1 and is considered patentable for the reasons presented earlier with regard to claim 1. Claim 4 transforms data from a data stream into a different state by decoding the data according to the specified steps. The data being transformed, the underlying subject matter, is data "for a video presentation on a display" as recited in claim 4. It represents the color values of pixels on a video display, and thus is patentable subject matter. The data is decoded "for a video presentation on a display." The transformation of the data accomplished by decoding the data is necessary for the video presentation of the data on a display. The data as received, in its encoded form, cannot be displayed until it has been decoded. Thus, the transformation is not insignificant post-solution activity, but rather the central purpose of the claimed method. Consequently, Applicants respectfully submit that the rejection of claim 4 is satisfied and should be withdrawn.

Claims 5 and 6 are dependent on claim 4 and are considered patentable for the reasons presented earlier with regard to claim 4. Thus, Applicants respectfully submit that the rejection of claims 5 and 6 are satisfied and should be withdrawn.

Claim 7 provides an apparatus for run-length encoding of a data stream comprising bitmap formatted subtitle or menu data for a visual display. Claim 7 has features similar to claim 1 and is considered patentable for reasons presented earlier with regard to claim 1. The Office Action asserts that the claim defines functional descriptive material per se because the specification does not disclose corresponding physical structure associated with each claim element. Applicants respectfully disagree.

Claim 7 recites "an **apparatus for run-length encoding** of a data stream comprising bitmap formatted subtitle or menu data for a visual presentation on a display" wherein the particular algorithm to be used in encoding the data stream is disclosed as "means for defining a first color; means for defining a range of run-lengths; means for encoding pixels of the first color" and "means for encoding pixels of another than the first

color.” Each “means for” element is modified by acts for performing the claimed function, e.g., “means for encoding pixels of the first color to first code words with two or three bytes, wherein” Because the design of encoders for encoding data streams is well known in the art, a person of ordinary skill in the relevant art is capable of producing an encoder to perform the described functions. Claim 7 does not recite a data structure or a computer program as a computer listing, which would fail patentability as functional descriptive material not attached to a computer readable medium. Rather, claim 7 recites “an apparatus for encoding.” An encoder is a known device in the art, specifically an encoder for encoding a data stream. The encoder is further limited by the limitations of each “means for” element. Thus, Applicants respectfully submit that the rejection of claim 7 as unpatentable subject matter is satisfied and should be withdrawn.

Claim 8 presents features similar to those of claim 7. Claim 8 recites “an **apparatus for run-length decoding** of an encoded data stream containing compressed bitmap formatted subtitle or menu data for video application,” wherein the particular algorithm to be used for decoding the encoded data stream is disclosed as “means for determining code word length wherein the first byte of a code word is evaluated . . . means for decoding code words determined to be one byte long . . . means for decoding code words determined to be two bytes long . . . means for decoding code words determined to be three bytes long . . . and means for decoding code words determined to be four bytes long . . .” Each “means for” element is modified by the acts for performing the claimed function, e.g., “means for decoding code words determined to be two bytes long to sequences of pixels of the defined first color, wherein the sequence length is defined by the remaining bits of the second byte of the code word.” Because the design of decoders for decoding encoded data streams is well known in the art, a person of ordinary skill in the relevant art is capable of producing a decoder to perform the described functions. Claim 8 does not recite a data structure or a computer program as a computer listing, which would fail patentability as functional descriptive material not attached to a computer readable medium. Rather, claim 8 recites “an apparatus for run-length decoding.” A decoder is a known device in the art, and the claim specifically recites a decoder “for run-length

decoding of an encoded data stream containing compressed bitmap formatted subtitle or menu data.” The decoder is further limited by the limitations of each “means for” element. Thus, Applicants respectfully submit that the rejection of claim 8 as unpatentable subject matter is satisfied and should be withdrawn.

Claim 9 is dependent on claim 8, and claims 10 and 11 are dependent on claim 7. Claims 9-11 are thus considered patentable for the reasons presented above in regard to claims 7 and 8. Consequently, Applicants respectfully submit that the rejection of claims 9-11 is satisfied and should be withdrawn.

Claim 12 is cancelled by this response.

New Claim

New claim 13 recites a “computer-readable medium or computer-readable memory comprising a run-length encoded data stream” encoded according to the encoding further disclosed by the claim limitations. The claim limitations further define how the encoded data is related to the original “bitmap formatted subtitle or menu data for video presentation on a display” from which the encoded data stream was derived. In the present claim, the computer-readable medium or computer-readable memory is a manufacture or composition of matter produced by the statutory method recited in the claim, because the data thereon has been encoded according to the process recited in the claim. Thus, the computer-readable medium or computer-readable memory containing the specified data is itself a manufacture or composition of matter under 35 U.S.C. 101. The usefulness of this manufacture is stated in the claim and elaborated in the specification: that it comprises “a run-length encoded data stream, the data stream comprising bitmap formatted subtitle or menu data for video presentation on a display” as recited in claim 13, and that data encoded according to such a process is more compact, facilitating storage of such data and reading of such data in devices that use a single pick-up to read multiple data streams (Specification page 5, lines 8 – 16). Thus, Applicants respectfully submit that claim 13 is patentable subject matter.

Having fully addressed the Examiner's rejections, it is believed that, in view of the preceding amendments and remarks, this application stands in condition for allowance. Accordingly then, reconsideration and allowance are respectfully solicited. If, however, the Examiner is of the opinion that such action cannot be taken, the Examiner is invited to contact the applicant's attorney at the phone number below, so that a mutually convenient date and time for a telephonic interview may be scheduled.

No fee is believed due. However, if a fee is due, please charge the additional fee to Deposit Account 07-0832.

Respectfully submitted,
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